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UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 10
1200 Sixth Avenue
Seattle, Washington 98101

July 20, 1994

Reply to
Attn of: HW-113

MEMORANDUM FIVE-YEAR REVIEW REPORT

Subject: Pre-final Inspection, Colbert Landfill

From: Neil Thompson, Project Manager

To: Colbert Landfill Site File

Attached is the Pre-final Inspection for the Colbert Landfill Superfund site. The site inspection took place on July 13, 1994. This inspection fulfills one of the requirements for the completion of construction phase of the site remedial actions.

July 14, 1994

PRE-FINAL INSPECTION

Colbert Landfill Superfund Site
Spokane County, Washington
WAD980514541

Purpose:

The pre-final inspection is a site inspection performed after the major construction items have been completed and the construction phase nears completion. The purpose is to document any punch-list items that are required to complete the construction phase. This inspection is followed by a final inspection when all of the punch-list items have been resolved.

Background:

The pre-final site inspection is done after the construction work is completed at the site. After the construction phase, there is a start up period for systems to come on line and get accepted. During the start up period, problems (punch-list items) that are identified are usually corrected by the construction contractor under the terms of the contract. Once all of the problems are corrected and the work is accepted, the final payment to the construction contractor is made and the construction is considered complete. The project then begins the operations and maintenance phase (O&M). As the project enters the O&M phase, an inspection (final inspection) of the construction phase will be made to document the final completion.

The Colbert Landfill has only a single Operable Unit (OU) so completion of construction for the OU is equivalent to the entire site.

Date of Pre-final Inspection: July 13, 1994.

Date of System Start-up (treated discharge): May 5, 1994.

Participants:

Name	Agency
Neil Thompson, Project Manager	EPA-Superfund
Dean Fowler, Project Manager	Spokane County
Steve Anderson, Operator	Spokane County
Debra Geiger, Operator	Spokane County
John Markus, Consulting Engineer	Spokane County, Landau
Tom Briggs, Consulting Engineer	Spokane County, Landau

History:

The Colbert Landfill is a closed 40-acre county landfill located about 15 miles north of Spokane, Washington. The landfill received municipal and commercial wastes from 1968 until 1986 when it was filled to capacity. During its operation, chlorinated organic solvents were brought to the landfill for disposal. Groundwater used for domestic supplies was contaminated with 1,1,1-trichloroethane (TCA) and methylene chloride (MC) above health based criteria. Alternate water has been supplied to 23 residences which experienced contaminated domestic wells.

Spokane County, Keytronic, U.S. Air Force (Fairchild AFB), and Alumax were all named as Potentially Responsible Parties (PRPs) for this site. Spokane County, Keytronic, and Air Force all signed a Consent Decree to complete the remedial action. Alumax settled with EPA later. The county agreed to do the work and has been in charge of the construction contracts.

The Record of Decision (ROD) required construction of a groundwater extraction and treatment system be installed to control and mitigate groundwater contamination and plume migration. The construction work was all related to construction of extraction and monitoring wells, air-stripping treatment plant, and connecting piping.

The final design called for an air-stripping tower approximately 70 feet high and 10 feet in diameter, 10 extraction wells, and about 4 miles of piping to connect the wells to the treatment plant and install a discharge line to the Little Spokane River.

The system testing was completed on closed loop water without discharging to the receiving water. After testing, the system was started up with full treatment and discharge on May 5, 1994.

Results of Inspection:

The pre-final inspection was conducted on May 5, 1994. The inspection centered on the operation of the air-stripping treatment system which reduces the volatile organic compounds, TCA and MC to performance levels which are stated in the ROD and Consent Decree. These levels were set to meet all required and health based criteria.

Contaminated groundwater enters the treatment facility through three inlet pipes before combining and lifted to the top of the air-stripping tower. The tower is approximately 70 feet tall with the 65 foot water drop through the internal plastic packing to a clear well about five feet above grade. The

treatment system is designed to have about a 100:1 air to water ratio for optimum performance. Provisions for scale control in the tower packing and batch cleaning of the tower are part of the system. Piping is available to route all cleaning water to a separate holding tank for shipment off site for disposal.

Ten extraction wells are on line and each is pumping at a pre-design rate. This rate may change during the early stages of operation for optimization of the plume capture. Each well has a variable controlled pump which is controlled from the treatment facility. The system of electronic and computer driven checks and control parameters provide a "state-of-the-art" control system. The plant was designed to be managed by a reduced staff (one to two person days per week) once the plant reaches normal operations and maintenance (O&M). The 4 wells from the south system have combined flows that reach the treatment plant through one of the inlet pipes. The flows from wells in the east system and west system are also combined as location dictates to enter either of the other two inlet pipes.

The current flows match the designed flows of about 1000 gallons per minute for the combined flow for the entire system. After treatment, the "clean" water enters a gravity discharge pipe which flows about one mile to its discharge point in the Little Spokane River. The state of Washington, Department of Ecology (Ecology) has issued interim substantive discharge limits for the discharge. Currently the treatment system is meeting all of the requirements.

Punch-List Items:

The prime construction contractor has completed all of the construction type of work, but has a few little finish details to complete before the final payment. The entire system has been operating successfully for about 3 weeks. The prime contractor and the county's engineering consultant have been fine tuning the system to ensure that the computer system keeps the system within the pre-set limits (currently the design criteria for each well). The major punch-list items that remain to be completed are:

1. Some of the computer software has some glitches that require fixing before the contract is complete.

2. The O&M manual has not been completely assembled and available for the use of the operators.

3. The two operators are still in their training program. At this point, their training is nearly complete and they are capable of managing most of the systems.

The report from the start-up engineer from Landau (county's engineering consultant) is that the system is working and

treating the groundwater better than expected. Fewer start-up problems have occurred than were anticipated and this was attributed to the oversight of the project by the county and their consultant. Most of the construction problems were caught as they occurred and corrected rather than seeing problems after the construction was considered completed by the contractor. These were not apparent during this inspection.

Ecology has some concerns about the discharge structure which is an open pipe at the river bank. The state usually requires a diffuser for point source discharges. Placing a diffuser would require working in a very aesthetic reach of the Little Spokane River and the property owners are not in favor of a pipe across the river only a few inches under water at low low flows. So far no visible impact from the discharge to the river has been noticed. The discharge was clear and did not appear to cause any detrimental effect on the river during this inspection. The river was a summer low flows and the top of the 18 inch discharge pipe was about 2 inches above the river level. There is required monitoring of the discharge both under the interim substantive NPDES (National Pollution Discharge Elimination System) requirements and proposed final requirements.

Conclusion:

The construction of the extraction wells and treatment system can be considered complete for purposes of the Preliminary Close Out Report which defines the end of the remedial action construction activities. The remaining punch-list items are being taken care of by the prime contractor and should be completed in a few weeks. The county's new operators are trained to maintain the system and verify that the data is reported. A full groundwater and system performance monitoring system is under design but is not fully implemented. This entire project from design, pilot testing, and construction took about four years and came in about one month after the projected start-up date.